

Pediatric Radiology Fellowship at Phoenix Children's Hospital

The fellowship will be a one year program, organized into 1-4 (2 week blocks) including the following disciplines (described below). The blocks will not follow in the order listed:

- 1: General Orientation Introduction to Fluoroscopy and Plain Film Radiography. 2 weeks.
- 2: Pediatric Fluoroscopy, Radiation Safety. 2 (2 week blocks)
- 3: Plain Film Radiology. 3 (2 week blocks)
- 4: Neuroradiology. 2 (2 week blocks)
- 5: Ultrasound. 2 (2 week blocks)
- 6: CT. 4 (2 week blocks)
- 7: MRI. 3 (2 week blocks)
- 8: Nuclear and Molecular Imaging. 2 (2 week blocks)
- 9: Clinical Research/ Elective. 2 (2 week blocks)
- 10: Vascular and Interventional Radiology. 1 (2 week blocks)
- 11: Vacation and meetings 4 weeks

General Philosophy for Pediatric Radiology

Goals: Fellows will develop the professional skills and caring attitude that will enable them to work with referring physicians and with the clinical team to provide timely and appropriate pediatric imaging. During the early blocks the fellow will learn practical skills for functioning in a pediatric radiology department and will focus on technical and conference skills. Talking to pediatric patients at an age-appropriate level and in a caring and respectful manner will be emphasized. Radiation safety in particular, the goal of using as low a dose as is reasonably achievable (ALARA)—will become part of the fellow's daily routine with emphasis on recent publications by the Society of Pediatric Radiology. This value will be reinforced by the diagnostic radiology staff.

Overview or Fellowship

The fellow will develop increasing independence by using professional and technical skills to provide quality fluoroscopic examinations for pediatric patients. The fellow will develop professional skills in pediatric US. The fellow will develop the professional knowledge, skills needed to provide high-quality CT, MR imaging, radiography, and US of pediatric patients, with an emphasis on neuroradiology but also including vascular MR imaging and exposure to MR spectroscopy. During this year the fellow will become the role interventional radiology plays in pediatric patient management. Even though at this hospital sedation is under the aegis of the Anesthesiology Department, the fellow will learn safe sedation practices. The fellow will develop the professional knowledge and technical skills needed to protocol, perform, and interpret high-quality chest radiography, chest CT, MR imaging of the airway, and chest US for pediatric patients. The fellow will learn the differences between screen-film radiography, computed radiography, and direct radiography and the physics of image capture. The goal of providing cost effective imaging will be emphasized during each subspecialty rotation. It will be based imaging literature and American College of Radiology guidelines.

Educational strategies.

General Objectives for All Rotations

Educational Strategies

1. Training and practice on use of imaging workstations, accessing electronic medical records, and using voice recognition for generating reports.
2. Basic instruction in Citrix and vpn software for communicating with hospital programs from fellow's home computer and importing electronic images for lectures and rounding with house staff personnel.
3. Learning methods of literature research with the librarian and other resources.
4. Familiarize with location of pediatric crash cart and specific method for calling a pediatric emergency or code with a pediatric radiology nurse.
5. Review all imaging protocol guidelines in consultation with Program Director and attending staff radiologist.
6. Receive orientation from the Program Director in regard to goals, expectations, and responsibilities during fellowship.
7. Participate in basic statistic course offered by hospital or web based.
8. Method of incorporation of cases into electronic teaching files by information system person.
9. Further objectives:
 - a. Observe staff interacting with patient and patient's family in caring, professional manner.
 - b. Demonstration of techniques for explaining procedures, technology, terminology, and results to patient and patient's family.
 - c. Demonstrate role as consultant in expediting cost effective and appropriate imaging workup of new patient.
 - d. Demonstrate different imaging preferences for different disease processes.
 - e. Attendance at interdisciplinary conferences related to subject material of each modality rotation and observing radiologist giving an interdisciplinary conference.
 - f. Demonstrate to pediatric radiology nurse the location of the pediatric crash carts in the department and the method of calling a pediatric code.
 - g. Demonstrate ability to perform an online literature search on a research topic by showing a printout of sources, collecting appropriate literature on the selected research topic, and initiating the selection of appropriate methodology for the research project.

Medical Knowledge

1. Understand the appropriate use of each imaging modality in the evaluation of infant, childhood, and adolescent disease in the context of routine and emergent imaging.
2. Be able to interpret all imaging studies and to dictate in a timely manor: Dictations should have key elements of the clinical history, past relevant history, current study, and interpretation. Learn the method of performing pre-set dictations.
3. In each modality be familiar with the equipment, the standard views, imaging sequences, and radiation doses.
4. Understand the uses and limitations of each modality in childhood and adolescent diseases.
5. Learn to utilize online resources from SPR and other sources.
 - a. Cleveland Clinic's Pediatric Radiology core concepts
 - b. Cincinnati Children's online learning modules
 - c. Children's Memorial Hospital Digital Teaching File
 - d. Brain myelination atlas
 - e. Lieberman's e-radiology
6. Learn imaging techniques for emergent situations.

7. Learn approach and differential diagnoses to different disease processes.
8. Understand low dose techniques and philosophies of “Image Gently” from SPR.
9. Enter at least two cases into teaching file during each modality rotation.

Patient Care

1. Involvement in patient care provided during both outpatient and inpatient children.
2. Evaluate appropriateness of requested examinations by familiarizing oneself with the reasons for studies in each modality.
3. Provide safe environment by following standard procedures according to the Procedures and Policy Statements.
4. Follow recommendations for safe contact with patients by washing of hands prior and after each encounter.
5. Dictations in appropriate timely manner with the use of standard format and appropriate language.
6. Recheck the correct sidedness of patient.
7. Be physically present in the modality except for designated conferences during rotation.

Interpersonal and Communication Skills

1. Work professionally and effectively with technologists.
2. Communicate findings effectively with referring physicians.
3. Ensure accurate dictated report in a timely manner.
4. Direct phone service to physician or service for emergent studies, critical values, and documentation of communication.
5. Demonstrate respect, compassion, and integrity in interactions with patients, technologists and physicians.
6. Inquire about special needs of patients.
7. Respectful for ethnic, economic, religious, and language diversity of families.
8. Avoid negative comments concerning other health care providers or institutions.
9. Do not discuss histories and care of patients in public places.
10. Observe HIPAA regulations.
11. Employ PowerPoint software for lecture presentations and learn how to use audio-visual technology for lectures

System Based Practice

1. Understand how each modality lends itself into the caring for patient, making correct diagnosis and helping improve outcomes.
2. Understand appropriateness of imaging guidelines from department’s standard protocols and ACR guidelines.
3. Understand best practices to exhibit and promote positive attitudes and behaviors that enhance patient care.
4. Try to create safe environment and endorse the JCAHO, institution guidelines for a safe environment.
5. Report errors for peer review and improvement in performance.
6. Work to improve systems not only within radiology but with the referring physicians or patients.
7. Cognoscente of prevalence of unnecessary imaging studies.
8. Understands balance between cost effectiveness and quality.

9. Empathetic to the obstacles and shortcomings of the health care system.
10. Understands how radiology relates to other health care professionals.

Practice Based Learning

1. Improvement in patient care through cognitive knowledge, observational skills, procedural skills and feedback.
2. Applies principles of evidence based medicine.
3. Critically reviews radiological literature.
4. Participates in QC and QA.
5. Effectively promotes learning with students, residents, and other health care professionals.

Professionalism

1. Demonstrates responsible work, attendance, work assignments
2. Demonstrates sensitivity to patient's age, culture, gender, disability
3. Demonstrates acceptable personal demeanor and hygiene
4. Demonstrates respect, compassion, integrity, ethics, confidentiality

Expectations of Performance

1. Expectation of timely arrival at work and contact faculty member if there is delay.
2. Daily review of schedule of each modality.
3. Connect with other fellows or faculty members about ongoing studies.
4. Daily interactions with residents and medical students for their education.

Documentation: The achievement of the above objectives and the objectives in each rotation will be documented by monthly pediatric radiology checklist with individualized items pertinent to that rotation.

Rotations in Pediatric Radiology Fellowship (specific objectives for each rotation)

Goals and objectives will be discussed at the beginning of each rotation.